



1547759_1.TXT

SEQUENCE LISTING

<110> Klein, Michael
Schultz, Dennis

<120> Gene Mutation Associated with
Age-Related Macular Degeneration

<130> 49321-117

<140> 10/766,760

<141> 2004-01-27

<150> 60/443,214

<151> 2003-01-27

<160> 186

<170> FastSEQ for Windows Version 4.0

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<211> 18206

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

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<221> variation

<222> (14197)...(14197)

<223> A and G allelic variation exists at this position

<221> variation

<222> (17811)...(17811)

<223> C and T allelic variation exists at this position

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ccaagagtct gatgagttac tctgagagga aaccctctgc ctgttggtga ggaggactga 180
gcacagtgtc taggcgctga gggggaaaaa gagggggaaa aaaaagaaa atg att tcc 238
Met Ile Ser
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Leu Ala Gln Asp Ala Ser Pro Gln Ser Glu Ile Arg Ala Glu Glu Ile
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Pro Glu Gly Ala Ser Thr Leu Ala Phe Val Phe Asp Val Thr Gly Ser
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Met Tyr Asp Asp Leu Val Gln Val Ile Glu Gly Ala Ser Lys Ile Leu
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ccc Pro 100	aag Lys	aaa Lys	ttt Phe	caa Gln	tat Tyr 105	gaa Glu	ctc Leu	aga Arg	gaa Glu	ctg Leu 110	tat Tyr	gtt Val	cag Gln	ggg Gly	ggg Gly 115	574
ggg Gly	gat Asp	tgc Cys	cca Pro	gaa Glu 120	atg Met	agt Ser	att Ile	gga Gly	gct Ala 125	ata Ile	aaa Lys	att Ile	gcc Ala	ttg Leu 130	gaa Glu	622
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gta Val	gaa Glu	gaa Glu	gca Ala 215	gta Val	cag Gln	gcc Ala	tcc Ser	aaa Lys 220	gtt Val	cac His	ctt Leu	tta Leu	tcc Ser 225	aca Thr	gat Asp	910
cat His	ttg Leu	gaa Glu 230	cag Gln	gct Ala	gta Val	aat Asn	act Thr 235	tgg Trp	aga Arg	att Ile	cct Pro	ttt Phe 240	gat Asp	ccc Pro	agc Ser	958
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570

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ctc Leu	ttt Phe	att Ile	tta Leu 855	aac Asn	tta Leu	tgg Trp	gca Ala	agt Ser 860	gat Asp	aaa Lys	gga Gly	acc Thr	tat Tyr 865	att Ile	tgt Cys	2830
gaa Glu	gct Ala	gaa Glu 870	aac Asn	cag Gln	ttt Phe	gga Gly	aag Lys 875	atc Ile	cag Gln	tca Ser	gag Glu	aca Thr 880	aca Thr	gta Val	aca Thr	2878
gtg Val	acc Thr 885	gga Gly	ctt Leu	gtt Val	gct Ala	cca Pro 890	ctt Leu	att Ile	gga Gly	atc Ile	agc Ser 895	cct Pro	tca Ser	gtg Val	gcc Ala	2926
aat Asn 900	gtt Val	att Ile	gaa Glu	gga Gly 905	cag Gln	cag Gln	ctt Leu	act Thr	ttg Leu	ccc Pro 910	tgt Cys	act Thr	ctg Leu	tta Leu	gct Ala 915	2974
gga Gly	aat Asn	ccc Pro	att Ile	cca Pro 920	gaa Glu	cgt Arg	cgg Arg	tgg Trp	att Ile 925	aag Lys	aat Asn	tca Ser	gct Ala	atg Met 930	ttg Leu	3022
ctc Leu	caa Gln	aat Asn 935	cct Pro	tac Tyr	atc Ile	act Thr	gtg Val	cgc Arg 940	agt Ser	gat Asp	ggg Gly	agc Ser	ctc Leu 945	cat His	att Ile	3070
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gcc Ala 1060	aaa Lys	agg Arg	aaa Lys	gtg Val	cag Gln 1065	cta Leu	aca Thr	gtc Val	tat Tyr	gta Val 1070	agg Arg	ccc Pro	aga Arg	gtg Val	ttt Phe 1075	3454

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Glu Arg Lys Tyr Asn Leu Lys Val His Val Pro Pro Val Ile Lys Asp	
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Lys Pro Leu Phe Leu Gly Asp Pro Asn Val Glu Leu Leu Asp Arg Gly	
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Trp	Leu	Lys	Asp	Asp	Gln	Pro	Val	Asn	Thr	Ala	Gln	Gly	Asn	Leu	Lys		
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Ile	Gln	Ser	Ser	Gly	Arg	Val	Leu	Gln	Ile	Ala	Lys	Thr	Leu	Leu	Glu		
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Asp	Ala	Gly	Arg	Tyr	Thr	Cys	Val	Ala	Thr	Asn	Ala	Ala	Gly	Glu	Thr		
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caa	cag	cac	att	caa	ctg	cat	gtt	cat	gaa	cca	cct	agt	ctg	gaa	gat	5998	
Gln	Gln	His	Ile	Gln	Leu	His	Val	His	Glu	Pro	Pro	Ser	Leu	Glu	Asp		
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Leu	Glu	Cys	Lys	Ala	Ala	Gly	Asn	Pro	Val	Pro	Val	Ile	Thr	Trp	Tyr		
1940					1945					1950					1955		
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Lys	Asp	Asn	Arg	Leu	Leu	Ser	Gly	Ser	Thr	Ser	Met	Thr	Phe	Leu	Asn		
				1960					1965						1970		
aga	gga	cag	atc	att	gat	att	gaa	agt	gcc	cag	atc	tca	gat	gct	ggc	6190	
Arg	Gly	Gln	Ile	Ile	Asp	Ile	Glu	Ser	Ala	Gln	Ile	Ser	Asp	Ala	Gly		
			1975					1980					1985				
ata	tat	aaa	tgc	gtg	gcc	atc	aac	tca	gct	gga	gct	aca	gag	tta	ttt	6238	
Ile	Tyr	Lys	Cys	Val	Ala	Ile	Asn	Ser	Ala	Gly	Ala	Thr	Glu	Leu	Phe		
		1990					1995					2000					
tac	agt	ctg	caa	gtt	cat	gtg	gcc	cca	tca	att	tct	ggc	agc	aat	aac	6286	
Tyr	Ser	Leu	Gln	Val	His	Val	Ala	Pro	Ser	Ile	Ser	Gly	Ser	Asn	Asn		
	2005					2010					2015						
atg	gtg	gca	gtg	gtg	gtt	aat	aac	ccg	gtg	agg	tta	gaa	tgt	gaa	gcc	6334	
Met	Val	Ala	Val	Val	Val	Asn	Asn	Pro	Val	Arg	Leu	Glu	Cys	Glu	Ala		
2020					2025					2030					2035		
aga	ggt	att	cct	gcc	cca	agt	ctg	acc	tggt	ttg	aaa	gat	ggg	agt	cct	6382	
Arg	Gly	Ile	Pro	Ala	Pro	Ser	Leu	Thr	Trp	Leu	Lys	Asp	Gly	Ser	Pro		
				2040					2045				2050				
gtt	tct	agt	ttt	tct	aat	gga	tta	cag	gtt	ctc	tct	ggt	ggt	cga	atc	6430	
Val	Ser	Ser	Phe	Ser	Asn	Gly	Leu	Gln	Val	Leu	Ser	Gly	Gly	Arg	Ile		
			2055					2060					2065				
cta	gca	ttg	acc	agt	gca	caa	atc	agc	gac	aca	gga	agg	tac	acc	tgc	6478	
Leu	Ala	Leu	Thr	Ser	Ala	Gln	Ile	Ser	Asp	Thr	Gly	Arg	Tyr	Thr	Cys		
		2070					2075					2080					

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gtg gca gtg aat gct gct gga gaa aag caa agg gac att gac ctc cga Val Ala Val Asn Ala Ala Gly Glu Lys Gln Arg Asp Ile Asp Leu Arg 2085 2090 2095	6526
gta tat gtt ccg cca aat att atg gga gaa gaa cag aat gtc tct gtc Val Tyr Val Pro Pro Asn Ile Met Gly Glu Glu Gln Asn Val Ser Val 2100 2105 2110 2115	6574
ctc att agc caa gct gtg gaa tta cta tgt caa agt gat gct att ccc Leu Ile Ser Gln Ala Val Glu Leu Leu Cys Gln Ser Asp Ala Ile Pro 2120 2125 2130	6622
cca cct act ctt act tgg tta aaa gac ggc cac ccc ttg ctg aag aaa Pro Pro Thr Leu Thr Trp Leu Lys Asp Gly His Pro Leu Leu Lys Lys 2135 2140 2145	6670
cca ggc ctc agt ata tct gaa aat aga agt gtg tta aag att gaa gat Pro Gly Leu Ser Ile Ser Glu Asn Arg Ser Val Leu Lys Ile Glu Asp 2150 2155 2160	6718
gct cag gtt caa gac act ggt cgt tac act tgt gaa gca aca aat gtt Ala Gln Val Gln Asp Thr Gly Arg Tyr Thr Cys Glu Ala Thr Asn Val 2165 2170 2175	6766
gct gga aaa act gaa aaa aac tac aat gtc aac att tgg gtc ccc cca Ala Gly Lys Thr Glu Lys Asn Tyr Asn Val Asn Ile Trp Val Pro Pro 2180 2185 2190 2195	6814
aat att ggt ggt tct gat gaa ctt act caa ctt aca gtc att gaa ggg Asn Ile Gly Gly Ser Asp Glu Leu Thr Gln Leu Thr Val Ile Glu Gly 2200 2205 2210	6862
aat ctc att agt ctg ttg tgt gaa tca agt ggt att cca ccc cca aat Asn Leu Ile Ser Leu Leu Cys Glu Ser Ser Gly Ile Pro Pro Pro Asn 2215 2220 2225	6910
ctc atc tgg aag aag aaa ggc tct cca gtg ctg act gat tcc atg ggg Leu Ile Trp Lys Lys Lys Gly Ser Pro Val Leu Thr Asp Ser Met Gly 2230 2235 2240	6958
cga gtt aga att tta tct ggg ggc agg caa tta caa att tca att gct Arg Val Arg Ile Leu Ser Gly Gly Arg Gln Leu Gln Ile Ser Ile Ala 2245 2250 2255	7006
gaa aag tct gat gca gca ctc tat tca tgt gtg gcg tcg aat gtt gct Glu Lys Ser Asp Ala Ala Leu Tyr Ser Cys Val Ala Ser Asn Val Ala 2260 2265 2270 2275	7054
ggg act gca aag aaa gaa tac aat ctg caa gtt tac att aga cca acc Gly Thr Ala Lys Lys Glu Tyr Asn Leu Gln Val Tyr Ile Arg Pro Thr 2280 2285 2290	7102
ata acc aac agt ggc agc cac cct act gaa att att gtg acc cga ggg Ile Thr Asn Ser Gly Ser His Pro Thr Glu Ile Ile Val Thr Arg Gly 2295 2300 2305	7150
aag agt atc tcc ttg gag tgt gag gtg cag ggt att cca cca cca aca Lys Ser Ile Ser Leu Glu Cys Glu Val Gln Gly Ile Pro Pro Pro Thr 2310 2315 2320	7198
gtg acc tgg atg aaa gat ggc cac ccc ttg atc aag gca aag gga gta Val Thr Trp Met Lys Asp Gly His Pro Leu Ile Lys Ala Lys Gly Val 2325 2330 2335	7246

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gaa ata ctg gat gaa ggt cac atc ctt cag ctg aag aac att cat gta Glu Ile Leu Asp Glu Gly His Ile Leu Gln Leu Lys Asn Ile His Val 2340 2345 2350 2355	7294
tct gac aca ggc cgt tat gtg tgt gtt gct gtg aat gta gca gga atg Ser Asp Thr Gly Arg Tyr Val Cys Val Ala Val Asn Val Ala Gly Met 2360 2365 2370	7342
act gac aaa aaa tat gac tta agt gtc cat gct cct cca agc atc ata Thr Asp Lys Lys Tyr Asp Leu Ser Val His Ala Pro Pro Ser Ile Ile 2375 2380 2385	7390
gga aac cac agg tca cct gaa aat att agt gtg gta gaa aag aac tca Gly Asn His Arg Ser Pro Glu Asn Ile Ser Val Val Glu Lys Asn Ser 2390 2395 2400	7438
gta tct ttg act tgt gaa gct tct gga att ccc ctg cct tcc ata acc Val Ser Leu Thr Cys Glu Ala Ser Gly Ile Pro Leu Pro Ser Ile Thr 2405 2410 2415	7486
tgg ttc aaa gat ggg tgg cct gtc agc ctt agc aat tct gtg agg att Trp Phe Lys Asp Gly Trp Pro Val Ser Leu Ser Asn Ser Val Arg Ile 2420 2425 2430 2435	7534
ctt tca gga ggc agg atg cta cgg ctg atg cag acc aca atg gaa gat Leu Ser Gly Gly Arg Met Leu Arg Leu Met Gln Thr Thr Met Glu Asp 2440 2445 2450	7582
gct ggc caa tat act tgc gtt gta agg aat gca gct ggt gaa gaa aga Ala Gly Gln Tyr Thr Cys Val Val Arg Asn Ala Ala Gly Glu Glu Arg 2455 2460 2465	7630
aaa atc ttt ggg ctt tca gta tta gta cca cct cat att gtg ggt gaa Lys Ile Phe Gly Leu Ser Val Leu Val Pro Pro His Ile Val Gly Glu 2470 2475 2480	7678
aat aca ttg gaa gat gtg aag gta aaa gag aaa cag agt gtt acg ctg Asn Thr Leu Glu Asp Val Lys Val Lys Glu Lys Gln Ser Val Thr Leu 2485 2490 2495	7726
act tgt gaa gtg aca ggg aat cca gtg cca gaa att aca tgg cac aaa Thr Cys Glu Val Thr Gly Asn Pro Val Pro Glu Ile Thr Trp His Lys 2500 2505 2510 2515	7774
gat ggg cag ccc ctc caa gaa gat gaa gcc cat cac att ata tct ggt Asp Gly Gln Pro Leu Gln Glu Asp Glu Ala His His Ile Ile Ser Gly 2520 2525 2530	7822
ggc cgt ttt ctt caa att acc aat gtc cag gtg cca cac act gga aga Gly Arg Phe Leu Gln Ile Thr Asn Val Gln Val Pro His Thr Gly Arg 2535 2540 2545	7870
tat aca tgt ttg gct tcc agt cca gct ggc cac aag agc agg agc ttc Tyr Thr Cys Leu Ala Ser Ser Pro Ala Gly His Lys Ser Arg Ser Phe 2550 2555 2560	7918
agt ctt aat gta ttt gta tct cct aca att gct ggt gta ggt agt gat Ser Leu Asn Val Phe Val Ser Pro Thr Ile Ala Gly Val Gly Ser Asp 2565 2570 2575	7966
ggc aac cct gaa gat gtc act gtc atc ctt aac agc cct aca tct ttg Gly Asn Pro Glu Asp Val Thr Val Ile Leu Asn Ser Pro Thr Ser Leu 2580 2585 2590	8014

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2580	2585	2590	2595	
gtc tgt gaa gct tat tca tat cct cca gct acc atc acc tgg ttt aag	Val Cys Glu Ala Tyr Ser Tyr Pro Pro Ala Thr Ile Thr Trp Phe Lys	8062		
	2600	2605	2610	
gat ggc act cct tta gaa tct aac cga aat att cgt att ctt cca gga	Asp Gly Thr Pro Leu Glu Ser Asn Arg Asn Ile Arg Ile Leu Pro Gly	8110		
	2615	2620	2625	
ggc aga act ctg cag atc ctc aat gca cag gag gac aat gct gga aga	Gly Arg Thr Leu Gln Ile Leu Asn Ala Gln Glu Asp Asn Ala Gly Arg	8158		
	2630	2635	2640	
tac tct tgt gta gcc acg aat gag gct gga gaa atg ata aag cac tat	Tyr Ser Cys Val Ala Thr Asn Glu Ala Gly Glu Met Ile Lys His Tyr	8206		
	2645	2650	2655	
gaa gtg aag gtg tac att cca ccc ata atc aat aaa ggg gac ctt tgg	Glu Val Lys Val Tyr Ile Pro Pro Ile Ile Asn Lys Gly Asp Leu Trp	8254		
	2660	2665	2670	2675
ggg cca ggt ctt tcc cct aaa gaa gtg aag atc aaa gta aac aac act	Gly Pro Gly Leu Ser Pro Lys Glu Val Lys Ile Lys Val Asn Asn Thr	8302		
	2680	2685	2690	
ctg acc ttg gaa tgt gaa gcg tat gca att cct tct gcc tcc ctc agc	Leu Thr Leu Glu Cys Glu Ala Tyr Ala Ile Pro Ser Ala Ser Leu Ser	8350		
	2695	2700	2705	
tgg tac aag gat gga cag ccc ctt aaa tcc gat gat cat gtt aat att	Trp Tyr Lys Asp Gly Gln Pro Leu Lys Ser Asp Asp His Val Asn Ile	8398		
	2710	2715	2720	
gct gcg aat gga cac aca ctt caa ata aag gag gct caa ata tca gac	Ala Ala Asn Gly His Thr Leu Gln Ile Lys Glu Ala Gln Ile Ser Asp	8446		
	2725	2730	2735	
acc gga cga tat act tgt gta gca tct aac att gca ggt gaa gat gag	Thr Gly Arg Tyr Thr Cys Val Ala Ser Asn Ile Ala Gly Glu Asp Glu	8494		
	2740	2745	2750	2755
ttg gat ttt gat gtg aat att caa gtt cct cca agt ttt cag aaa ctc	Leu Asp Phe Asp Val Asn Ile Gln Val Pro Pro Ser Phe Gln Lys Leu	8542		
	2760	2765	2770	
tgg gaa ata gga aac atg cta gat act ggc agg aat ggt gaa gcc aaa	Trp Glu Ile Gly Asn Met Leu Asp Thr Gly Arg Asn Gly Glu Ala Lys	8590		
	2775	2780	2785	
gat gtg atc atc aac aat ccc att tct ctt tac tgt gag aca aat gct	Asp Val Ile Ile Asn Asn Pro Ile Ser Leu Tyr Cys Glu Thr Asn Ala	8638		
	2790	2795	2800	
gct ccc cct cct aca ctg aca tgg tac aaa gat ggc cac cct ctg acc	Ala Pro Pro Pro Thr Leu Thr Trp Tyr Lys Asp Gly His Pro Leu Thr	8686		
	2805	2810	2815	
tca agt gat aaa gta ttg att ttg cca gga ggc cga gtg ttg cag att	Ser Ser Asp Lys Val Leu Ile Leu Pro Gly Gly Arg Val Leu Gln Ile	8734		
	2820	2825	2830	2835
cct cgg gct aaa gta gaa gat gct ggg aga tac aca tgt gtg gct gtg		8782		

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Pro	Arg	Ala	Lys	Val	Glu	Asp	Ala	Gly	Arg	Tyr	Thr	Cys	Val	Ala	Val		
				2840					2845						2850		
aat	gag	gct	gga	gaa	gat	tcc	ctt	caa	tat	gat	gtc	cgt	gta	ctc	gtg	8830	
Asn	Glu	Ala	Gly	Glu	Asp	Ser	Leu	Gln	Tyr	Asp	Val	Arg	Val	Leu	Val		
			2855					2860					2865				
ccg	cca	att	atc	aag	gga	gca	aat	agt	gat	ctc	cct	gaa	gag	gtc	acc	8878	
Pro	Pro	Ile	Ile	Lys	Gly	Ala	Asn	Ser	Asp	Leu	Pro	Glu	Glu	Val	Thr		
		2870					2875					2880					
gtg	ctg	gtg	aac	aag	agt	gca	ctg	ata	gag	tgt	tta	tcc	agt	ggc	agc	8926	
Val	Leu	Val	Asn	Lys	Ser	Ala	Leu	Ile	Glu	Cys	Leu	Ser	Ser	Gly	Ser		
	2885					2890					2895						
cca	gca	cca	agg	aat	tcc	tgg	cag	aaa	gat	gga	cag	ccc	ttg	cta	gaa	8974	
Pro	Ala	Pro	Arg	Asn	Ser	Trp	Gln	Lys	Asp	Gly	Gln	Pro	Leu	Leu	Glu		
2900					2905					2910					2915		
gat	gac	cat	cat	aaa	ttt	cta	tct	aat	gga	cga	att	ctg	cag	att	ctg	9022	
Asp	Asp	His	His	Lys	Phe	Leu	Ser	Asn	Gly	Arg	Ile	Leu	Gln	Ile	Leu		
				2920					2925					2930			
aat	act	caa	ata	aca	gat	atc	ggc	agg	tat	gtg	tgt	gtt	gct	gag	aac	9070	
Asn	Thr	Gln	Ile	Thr	Asp	Ile	Gly	Arg	Tyr	Val	Cys	Val	Ala	Glu	Asn		
			2935				2940						2945				
aca	gct	ggg	agt	gcc	aaa	aaa	tat	ttt	aac	ctc	aat	gtt	cat	gtt	cct	9118	
Thr	Ala	Gly	Ser	Ala	Lys	Lys	Tyr	Phe	Asn	Leu	Asn	Val	His	Val	Pro		
	2950						2955					2960					
cca	agt	gtc	att	ggc	cct	aaa	tct	gaa	aat	ctt	acc	gtc	gtg	gtg	aac	9166	
Pro	Ser	Val	Ile	Gly	Pro	Lys	Ser	Glu	Asn	Leu	Thr	Val	Val	Val	Asn		
	2965					2970					2975						
aat	ttc	atc	tct	ttg	acc	tgt	gag	gtc	tct	ggc	ttt	cca	cct	cct	gac	9214	
Asn	Phe	Ile	Ser	Leu	Thr	Cys	Glu	Val	Ser	Gly	Phe	Pro	Pro	Pro	Asp		
2980					2985					2990					2995		
ctc	agc	tgg	ctc	aag	aat	gaa	cag	ccc	atc	aaa	ctg	aac	aca	aat	act	9262	
Leu	Ser	Trp	Leu	Lys	Asn	Glu	Gln	Pro	Ile	Lys	Leu	Asn	Thr	Asn	Thr		
				3000					3005					3010			
ctc	att	gtg	cct	ggc	ggc	cga	act	cta	cag	att	att	cgg	gcc	aag	gta	9310	
Leu	Ile	Val	Pro	Gly	Gly	Arg	Thr	Leu	Gln	Ile	Ile	Arg	Ala	Lys	Val		
			3015					3020					3025				
tca	gat	ggc	ggc	gaa	tac	act	tgt	ata	gct	atc	aat	caa	gct	ggc	gaa	9358	
Ser	Asp	Gly	Gly	Glu	Tyr	Thr	Cys	Ile	Ala	Ile	Asn	Gln	Ala	Gly	Glu		
		3030					3035					3040					
agc	aag	aaa	aag	ttt	tcc	ctg	act	gtt	tat	gtg	ccc	cca	agc	att	aaa	9406	
Ser	Lys	Lys	Lys	Phe	Ser	Leu	Thr	Val	Tyr	Val	Pro	Pro	Ser	Ile	Lys		
	3045					3050					3055						
gac	cat	gac	agt	gaa	tct	ctt	tct	gta	gtt	aat	gta	aga	gag	gga	act	9454	
Asp	His	Asp	Ser	Glu	Ser	Leu	Ser	Val	Val	Asn	Val	Arg	Glu	Gly	Thr		
3060					3065					3070					3075		
tct	gtg	tct	ttg	gag	tgt	gag	tcg	aac	gct	gtg	cca	cct	cca	gtc	atc	9502	
Ser	Val	Ser	Leu	Glu	Cys	Glu	Ser	Asn	Ala	Val	Pro	Pro	Pro	Val	Ile		
				3080					3085					3090			

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act tgg tat aag aat ggg cgg atg ata aca gag tct act cat gtg gag	9550
Thr Trp Tyr Lys Asn Gly Arg Met Ile Thr Glu Ser Thr His Val Glu	
3095 3100 3105	
att tta gct gat gga caa atg cta cac att aag aaa gct gag gta tct	9598
Ile Leu Ala Asp Gly Gln Met Leu His Ile Lys Lys Ala Glu Val Ser	
3110 3115 3120	
gac aca ggc cag tat gta tgt aga gct ata aat gta gca gga cgg gat	9646
Asp Thr Gly Gln Tyr Val Cys Arg Ala Ile Asn Val Ala Gly Arg Asp	
3125 3130 3135	
gat aaa aat ttc cac ctc aat gta tat gtg cca ccc agt att gaa gga	9694
Asp Lys Asn Phe His Leu Asn Val Tyr Val Pro Pro Ser Ile Glu Gly	
3140 3145 3150 3155	
cct gaa aga gaa gtg att gtg gag acg atc agc aat cct gtg aca tta	9742
Pro Glu Arg Glu Val Ile Val Glu Thr Ile Ser Asn Pro Val Thr Leu	
3160 3165 3170	
aca tgt gat gcc act ggg atc cca cct ccc acg ata gca tgg tta aag	9790
Thr Cys Asp Ala Thr Gly Ile Pro Pro Pro Thr Ile Ala Trp Leu Lys	
3175 3180 3185	
aac cac aag cgc ata gaa aat tct gac tca ctg gaa gtt cgt att ttg	9838
Asn His Lys Arg Ile Glu Asn Ser Asp Ser Leu Glu Val Arg Ile Leu	
3190 3195 3200	
tct gga ggt agc aaa ctc cag att gcc cgg tct cag cat tca gat agt	9886
Ser Gly Gly Ser Lys Leu Gln Ile Ala Arg Ser Gln His Ser Asp Ser	
3205 3210 3215	
gga aac tat aca tgt att gct tca aat atg gag gga aaa gcc cag aaa	9934
Gly Asn Tyr Thr Cys Ile Ala Ser Asn Met Glu Gly Lys Ala Gln Lys	
3220 3225 3230 3235	
tat tac ttt ctt tca att caa gtt cct cca agt gtt gct ggt gct gaa	9982
Tyr Tyr Phe Leu Ser Ile Gln Val Pro Pro Ser Val Ala Gly Ala Glu	
3240 3245 3250	
att cca agt gat gtc agt gtc ctt cta gga gaa aat gtt gag ctg gtc	10030
Ile Pro Ser Asp Val Ser Val Leu Leu Gly Glu Asn Val Glu Leu Val	
3255 3260 3265	
tgc aat gca aat ggc att cct act cca ctt att caa tgg ctt aaa gat	10078
Cys Asn Ala Asn Gly Ile Pro Thr Pro Leu Ile Gln Trp Leu Lys Asp	
3270 3275 3280	
gga aag ccc ata gct agt ggt gaa aca gaa aga atc cga gtg agt gca	10126
Gly Lys Pro Ile Ala Ser Gly Glu Thr Glu Arg Ile Arg Val Ser Ala	
3285 3290 3295	
aat ggc agc aca tta aac att tat gga gct ctt aca tct gac acg ggg	10174
Asn Gly Ser Thr Leu Asn Ile Tyr Gly Ala Leu Thr Ser Asp Thr Gly	
3300 3305 3310 3315	
aaa tac aca tgt gtt gct act aat ccc gct gga gaa gaa gac cga att	10222
Lys Tyr Thr Cys Val Ala Thr Asn Pro Ala Gly Glu Glu Asp Arg Ile	
3320 3325 3330	
ttt aac ttg aat gtc tat gtt aca cct aca att agg ggt aat aaa gat	10270
Phe Asn Leu Asn Val Tyr Val Thr Pro Thr Ile Arg Gly Asn Lys Asp	
3335 3340 3345	

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gaa gca gag aaa cta atg act tta gtg gat act tca ata aat att gaa Glu Ala Glu Lys Leu Met Thr Leu Val Asp Thr Ser Ile Asn Ile Glu 3350 3355 3360	10318
tgc aga gcc aca ggg acg cct cca cca cag ata aac tgg ctg aag aat Cys Arg Ala Thr Gly Thr Pro Pro Gln Ile Asn Trp Leu Lys Asn 3365 3370 3375	10366
gga ctt cct ctg cct ctc tcc tcc cat atc cgg tta ctg gca gca gga Gly Leu Pro Leu Pro Leu Ser Ser His Ile Arg Leu Leu Ala Ala Gly 3380 3385 3390 3395	10414
caa gtt atc agg att gtg aga gct cag gtg tct gat gtc gct gtg tat Gln Val Ile Arg Ile Val Arg Ala Gln Val Ser Asp Val Ala Val Tyr 3400 3405 3410	10462
act tgt gtg gcc tcc aac aga gct ggg gtg gat aat aag cat tac aat Thr Cys Val Ala Ser Asn Arg Ala Gly Val Asp Asn Lys His Tyr Asn 3415 3420 3425	10510
ctt caa gtg ttt gca cca cca aat atg gac aat tca atg ggg aca gag Leu Gln Val Phe Ala Pro Pro Asn Met Asp Asn Ser Met Gly Thr Glu 3430 3435 3440	10558
gaa atc aca gtt ctc aaa ggt agt tcc acc tct atg gca tgc att act Glu Ile Thr Val Leu Lys Gly Ser Ser Thr Ser Met Ala Cys Ile Thr 3445 3450 3455	10606
gat gga acc cca gct ccc agt atg gcc tgg ctt aga gat ggc cag cct Asp Gly Thr Pro Ala Pro Ser Met Ala Trp Leu Arg Asp Gly Gln Pro 3460 3465 3470 3475	10654
ctg ggg ctt gat gcc cat ctg aca gtc agc acc cat gga atg gtc ctg Leu Gly Leu Asp Ala His Leu Thr Val Ser Thr His Gly Met Val Leu 3480 3485 3490	10702
cag ctc ctc aaa gca gag act gaa gat tgc gga aag tac acc tgc att Gln Leu Leu Lys Ala Glu Thr Glu Asp Ser Gly Lys Tyr Thr Cys Ile 3495 3500 3505	10750
gcc tca aat gaa gct gga gaa gtc agc aag cac ttt atc ctc aag gtc Ala Ser Asn Glu Ala Gly Glu Val Ser Lys His Phe Ile Leu Lys Val 3510 3515 3520	10798
cta gaa cca cct cac att aat gga tct gaa gaa cat gaa gag ata tca Leu Glu Pro Pro His Ile Asn Gly Ser Glu Glu His Glu Glu Ile Ser 3525 3530 3535	10846
gta att gtt aat aac cca ctt gaa ctt acc tgc att gct tct gga atc Val Ile Val Asn Asn Pro Leu Glu Leu Thr Cys Ile Ala Ser Gly Ile 3540 3545 3550 3555	10894
cca gcc cct aaa atg acc tgg atg aaa gat ggc cgg ccc ctt cca cag Pro Ala Pro Lys Met Thr Trp Met Lys Asp Gly Arg Pro Leu Pro Gln 3560 3565 3570	10942
acg gat caa gtg caa act cta gga gga gga gag gtt ctt cga att tct Thr Asp Gln Val Gln Thr Leu Gly Gly Gly Glu Val Leu Arg Ile Ser 3575 3580 3585	10990
act gct cag gtg gag gat aca gga aga tat aca tgt ctg gca tcc agt Thr Ala Gln Val Glu Asp Thr Gly Arg Tyr Thr Cys Leu Ala Ser Ser 3590 3595 3600	11038

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3590	3595	3600	
cct gca gga gat gat gat Pro Ala Gly Asp Asp Asp 3605	aag gaa tat cta gtg Lys Glu Tyr Leu Val 3610	aga gtg cat gta cct Arg Val His Val Pro 3615	11086
cct aat att gct gga act gat gag ccc cgg Pro Asn Ile Ala Gly Thr Asp Glu Pro Arg 3620	gat atc act gtg tta cgg Asp Ile Thr Val Leu Arg 3630		11134
aac aga caa gtg aca ttg gaa tgc aag tca Asn Arg Gln Val Thr Leu Glu Cys Lys Ser 3640	gat gca gtg ccc cca cct Asp Ala Val Pro Pro Pro 3645		11182
gta att act tgg ctc aga aat gga gaa cgg tta Val Ile Thr Trp Leu Arg Asn Gly Glu Arg Leu 3655	cag gca aca cct cga Gln Ala Thr Pro Arg 3660		11230
gtg cga atc cta tct gga ggg aga tac ttg Val Arg Ile Leu Ser Gly Gly Arg Tyr Leu 3670	caa atc aac aat gct gac Gln Ile Asn Asn Ala Asp 3680		11278
cta ggt gat aca gcc aat tat acc tgt gtt Leu Gly Asp Thr Ala Asn Tyr Thr Cys Val 3685	gcc agc aac att gca gga Ala Ser Asn Ile Ala Gly 3695		11326
aag act aca aga gaa ttt att ctc act gta Lys Thr Thr Arg Glu Phe Ile Leu Thr Val 3700	aat gtt cct cca aac ata Asn Val Pro Pro Asn Ile 3710		11374
aag ggg ggc ccc cag agc ctt gta att ctt Lys Gly Gly Pro Gln Ser Leu Val Ile Leu 3720	tta aat aag tca act gta Leu Asn Lys Ser Thr Val 3730		11422
ttg gaa tgc atc gct gaa ggt gtg cca act Leu Glu Cys Ile Ala Glu Gly Val Pro Thr 3735	cca agg ata aca tgg aga Pro Arg Ile Thr Trp Arg 3740		11470
aag gat gga gct gtt cta gct ggg aat cat Lys Asp Gly Ala Val Leu Ala Gly Asn His 3750	gca aga tat tcc atc ttg Ala Arg Tyr Ser Ile Leu 3760		11518
gaa aat gga ttc ctt cat att caa tca gca Glu Asn Gly Phe Leu His Ile Gln Ser Ala 3765	cat gtc act gac act gga His Val Thr Asp Thr Gly 3775		11566
cgg tat ttg tgt atg gcc acc aat gct gct Arg Tyr Leu Cys Met Ala Thr Asn Ala Ala 3780	gga aca gat cgc agg cga Gly Thr Asp Arg Arg Arg 3790		11614
ata gat tta cag gtc cat gtt cct cca tct Ile Asp Leu Gln Val His Val Pro Pro Ser 3800	att gct ccg ggt cct acc Ile Ala Pro Gly Pro Thr 3805		11662
aac atg act gta ata gta aat gtt caa act Asn Met Thr Val Ile Val Asn Val Gln Thr 3815	act ctg gct tgt gag gct Thr Thr Leu Ala Cys Glu Ala 3820		11710
act ggg ata cca aaa cca tca atc aat tgg Thr Gly Ile Pro Lys Pro Ser Ile Asn Trp 3830	aga aaa aat ggg cat ctt Arg Lys Asn Gly His Leu 3840		11758
ctt aat gtg gat caa aat cag aac tca tac agg ctc ctt tct tca ggt			11806

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Leu	Asn	Val	Asp	Gln	Asn	Gln	Asn	Ser	Tyr	Arg	Leu	Leu	Ser	Ser	Gly		
3845						3850					3855						
tca	cta	gta	att	att	tcc	cct	tct	gtg	gat	gac	act	gca	acc	tat	gaa	11854	
Ser	Leu	Val	Ile	Ile	Ser	Pro	Ser	Val	Asp	Asp	Thr	Ala	Thr	Tyr	Glu		
3860					3865					3870					3875		
tgt	act	gtg	aca	aac	ggt	gct	gga	gat	gat	aaa	aga	act	gtg	gat	ctc	11902	
Cys	Thr	Val	Thr	Asn	Gly	Ala	Gly	Asp	Asp	Lys	Arg	Thr	Val	Asp	Leu		
				3880					3885					3890			
act	gtc	caa	gtt	cca	cct	tcc	ata	gct	gat	gag	cct	aca	gat	ttc	cta	11950	
Thr	Val	Gln	Val	Pro	Pro	Ser	Ile	Ala	Asp	Glu	Pro	Thr	Asp	Phe	Leu		
			3895					3900					3905				
gta	acc	aaa	cat	gcc	cca	gca	gta	att	acc	tgc	act	gct	tcg	gga	gtt	11998	
Val	Thr	Lys	His	Ala	Pro	Ala	Val	Ile	Thr	Cys	Thr	Ala	Ser	Gly	Val		
		3910					3915					3920					
cca	ttt	ccc	tca	att	cac	tgg	acc	aaa	aat	ggt	ata	aga	ctg	ctt	ccc	12046	
Pro	Phe	Pro	Ser	Ile	His	Trp	Thr	Lys	Asn	Gly	Ile	Arg	Leu	Leu	Pro		
	3925					3930					3935						
agg	gga	gat	ggc	tat	aga	att	ctg	tcc	tca	gga	gca	att	gaa	ata	ctt	12094	
Arg	Gly	Asp	Gly	Tyr	Arg	Ile	Leu	Ser	Ser	Gly	Ala	Ile	Glu	Ile	Leu		
3940					3945					3950					3955		
gcc	acc	caa	tta	aac	cat	gct	gga	aga	tac	act	tgt	gtc	gct	agg	aat	12142	
Ala	Thr	Gln	Leu	Asn	His	Ala	Gly	Arg	Tyr	Thr	Cys	Val	Ala	Arg	Asn		
				3960					3965					3970			
gcg	gct	ggc	tct	gca	cat	cga	cac	gtg	acc	ctt	cat	gtt	cat	gag	cct	12190	
Ala	Ala	Gly	Ser	Ala	His	Arg	His	Val	Thr	Leu	His	Val	His	Glu	Pro		
			3975					3980					3985				
cca	gtc	att	cag	ccc	caa	cca	agt	gaa	cta	cac	gtc	att	ctg	aac	aat	12238	
Pro	Val	Ile	Gln	Pro	Gln	Pro	Ser	Glu	Leu	His	Val	Ile	Leu	Asn	Asn		
		3990					3995					4000					
cct	att	tta	tta	cca	tgt	gaa	gca	aca	ggg	aca	ccc	agt	cct	ttc	att	12286	
Pro	Ile	Leu	Leu	Pro	Cys	Glu	Ala	Thr	Gly	Thr	Pro	Ser	Pro	Phe	Ile		
	4005					4010					4015						
act	tgg	caa	aaa	gaa	ggc	atc	aat	gtt	aac	act	tca	ggc	aga	aac	cat	12334	
Thr	Trp	Gln	Lys	Glu	Gly	Ile	Asn	Val	Asn	Thr	Ser	Gly	Arg	Asn	His		
4020					4025					4030					4035		
gca	gtt	ctt	cct	agt	ggc	ggc	tta	cag	atc	tcc	aga	gct	gtc	cga	gag	12382	
Ala	Val	Leu	Pro	Ser	Gly	Gly	Leu	Gln	Ile	Ser	Arg	Ala	Val	Arg	Glu		
				4040					4045					4050			
gat	gct	ggc	act	tac	atg	tgt	gtg	gcc	cag	aac	ccg	gct	ggt	aca	gcc	12430	
Asp	Ala	Gly	Thr	Tyr	Met	Cys	Val	Ala	Gln	Asn	Pro	Ala	Gly	Thr	Ala		
			4055					4060					4065				
ttg	ggc	aaa	atc	aag	tta	aat	gtc	caa	gtt	cct	cca	gtc	att	agc	cct	12478	
Leu	Gly	Lys	Ile	Lys	Leu	Asn	Val	Gln	Val	Pro	Pro	Val	Ile	Ser	Pro		
		4070					4075					4080					
cat	cta	aag	gaa	tat	gtt	att	gct	gtg	gac	aag	ccc	atc	acg	tta	tcc	12526	
His	Leu	Lys	Glu	Tyr	Val	Ile	Ala	Val	Asp	Lys	Pro	Ile	Thr	Leu	Ser		
	4085					4090					4095						

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tgt gaa gca gat ggc ctc cct ccg cct gac att aca tgg cat aaa gat	12574
Cys Glu Ala Asp Gly Leu Pro Pro Pro Asp Ile Thr Trp His Lys Asp	
4100 4105 4110 4115	
ggg cgt gca att gtg gaa tct atc cgc cag cgc gtc ctc agc tct ggc	12622
Gly Arg Ala Ile Val Glu Ser Ile Arg Gln Arg Val Leu Ser Ser Gly	
4120 4125 4130	
tct ctg caa ata gca ttt gtc cag cct ggt gat gct ggc cat tac acg	12670
Ser Leu Gln Ile Ala Phe Val Gln Pro Gly Asp Ala Gly His Tyr Thr	
4135 4140 4145	
tgc atg gca gcc aat gta gca gga tca agc agc aca agc acc aag ctc	12718
Cys Met Ala Ala Asn Val Ala Gly Ser Ser Ser Thr Ser Thr Lys Leu	
4150 4155 4160	
acc gtc cat gta cca ccc agg atc aga agt aca gaa gga cac tac acg	12766
Thr Val His Val Pro Pro Arg Ile Arg Ser Thr Glu Gly His Tyr Thr	
4165 4170 4175	
gtc aat gag aat tca caa gcc att ctt cca tgc gta gct gat gga atc	12814
Val Asn Glu Asn Ser Gln Ala Ile Leu Pro Cys Val Ala Asp Gly Ile	
4180 4185 4190 4195	
ccc aca cca gca att aac tgg aaa aaa gac aat gtt ctt tta gct aac	12862
Pro Thr Pro Ala Ile Asn Trp Lys Lys Asp Asn Val Leu Leu Ala Asn	
4200 4205 4210	
ttg tta gga aaa tac act gct gaa cca tat gga gaa ctc att tta gaa	12910
Leu Leu Gly Lys Tyr Thr Ala Glu Pro Tyr Gly Glu Leu Ile Leu Glu	
4215 4220 4225	
aat gtt gtg ctg gag gat tct ggc ttc tat acc tgt gtt gct aac aat	12958
Asn Val Val Leu Glu Asp Ser Gly Phe Tyr Thr Cys Val Ala Asn Asn	
4230 4235 4240	
gct gca ggt gaa gat aca cac act gtc agc ctg act gtg cat gtt ctc	13006
Ala Ala Gly Glu Asp Thr His Thr Val Ser Leu Thr Val His Val Leu	
4245 4250 4255	
ccc act ttt act gaa ctt cct gga gac gtg tca tta aat aaa gga gaa	13054
Pro Thr Phe Thr Glu Leu Pro Gly Asp Val Ser Leu Asn Lys Gly Glu	
4260 4265 4270 4275	
cag cta cga tta agc tgt aaa gct act ggt att cca ttg ccc aaa tta	13102
Gln Leu Arg Leu Ser Cys Lys Ala Thr Gly Ile Pro Leu Pro Lys Leu	
4280 4285 4290	
aca tgg acc ttc aat aac aat att att cca gcc cac ttt gac agt gtg	13150
Thr Trp Thr Phe Asn Asn Asn Ile Ile Pro Ala His Phe Asp Ser Val	
4295 4300 4305	
aat gga cac agt gaa ctt gtt att gaa aga gtg tca aaa gag gat tca	13198
Asn Gly His Ser Glu Leu Val Ile Glu Arg Val Ser Lys Glu Asp Ser	
4310 4315 4320	
ggt act tat gtg tgc acc gca gag aac agc gtt ggc ttt gtg aag gca	13246
Gly Thr Tyr Val Cys Thr Ala Glu Asn Ser Val Gly Phe Val Lys Ala	
4325 4330 4335	
att gga ttt gtt tat gtg aaa gaa cct cca gtc ttc aaa ggt gat tat	13294
Ile Gly Phe Val Tyr Val Lys Glu Pro Pro Val Phe Lys Gly Asp Tyr	
4340 4345 4350 4355	

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cct tct aac tgg att gaa cca ctt ggt ggg aat gca atc ctg aat tgt	13342
Pro Ser Asn Trp Ile Glu Pro Leu Gly Gly Asn Ala Ile Leu Asn Cys	
4360 4365 4370	
gag gtg aaa gga gac ccc acc cca acc atc cag tgg aac aga aag gga	13390
Glu Val Lys Gly Asp Pro Thr Pro Thr Ile Gln Trp Asn Arg Lys Gly	
4375 4380 4385	
gtg gat att gaa att agc cac aga atc cgg caa ctg ggc aat ggc tcc	13438
Val Asp Ile Glu Ile Ser His Arg Ile Arg Gln Leu Gly Asn Gly Ser	
4390 4395 4400	
ctg gcc atc tat ggc act gtt aat gaa gat gcc ggt gac tat aca tgt	13486
Leu Ala Ile Tyr Gly Thr Val Asn Glu Asp Ala Gly Asp Tyr Thr Cys	
4405 4410 4415	
gta gct acc aat gaa gct ggg gtg gtg gag cgc agc atg agt ctg act	13534
Val Ala Thr Asn Glu Ala Gly Val Val Glu Arg Ser Met Ser Leu Thr	
4420 4425 4430 4435	
ctg caa agt cct cct att atc act ctt gag cca gtg gaa act gtt att	13582
Leu Gln Ser Pro Pro Ile Ile Thr Leu Glu Pro Val Glu Thr Val Ile	
4440 4445 4450	
aat gct ggt ggc aaa atc ata ttg aat tgt cag gca act gga gag cct	13630
Asn Ala Gly Gly Lys Ile Ile Leu Asn Cys Gln Ala Thr Gly Glu Pro	
4455 4460 4465	
caa cca acc att aca tgg tcc cgt caa ggg cac tct att tcc tgg gat	13678
Gln Pro Thr Ile Thr Trp Ser Arg Gln Gly His Ser Ile Ser Trp Asp	
4470 4475 4480	
gac cgg gtt aac gtg ttg tcc aac aac tca tta tat att gct gat gct	13726
Asp Arg Val Asn Val Leu Ser Asn Asn Ser Leu Tyr Ile Ala Asp Ala	
4485 4490 4495	
cag aaa gaa gat acc tct gaa ttt gaa tgt gtt gct cga aac tta atg	13774
Gln Lys Glu Asp Thr Ser Glu Phe Glu Cys Val Ala Arg Asn Leu Met	
4500 4505 4510 4515	
ggt tct gtc ctt gtc aga gtg cca gtc ata gtc cag gtt cat ggt gga	13822
Gly Ser Val Leu Val Arg Val Pro Val Ile Val Gln Val His Gly Gly	
4520 4525 4530	
ttt tcc cag tgg tct gca tgg aga gcc tgc agt gtc acc tgt gga aaa	13870
Phe Ser Gln Trp Ser Ala Trp Arg Ala Cys Ser Val Thr Cys Gly Lys	
4535 4540 4545	
ggc atc caa aag agg agt cgt ctg tgc aac cag ccc ctt cca gcc aat	13918
Gly Ile Gln Lys Arg Ser Arg Leu Cys Asn Gln Pro Leu Pro Ala Asn	
4550 4555 4560	
ggt ggg aag ccc tgc caa ggt tca gat ttg gaa atg cga aac tgt caa	13966
Gly Gly Lys Pro Cys Gln Gly Ser Asp Leu Glu Met Arg Asn Cys Gln	
4565 4570 4575	
aat aag cct tgt cca gtg gat ggt agc tgg tcg gaa tgg agt ctt tgg	14014
Asn Lys Pro Cys Pro Val Asp Gly Ser Trp Ser Glu Trp Ser Leu Trp	
4580 4585 4590 4595	
gaa gaa tgc aca agg agc tgt gga cgc ggc aac caa acc agg acc agg	14062
Glu Glu Cys Thr Arg Ser Cys Gly Arg Gly Asn Gln Thr Arg Thr Arg	

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4600															4605	4610															
act	tgc	aat	aat	cca	tca	gtt	cag	cat	ggg	ggg	cgg	cca	tgt	gaa	ggg	14110															
Thr	Cys	Asn	Asn	Pro	Ser	Val	Gln	His	Gly	Gly	Arg	Pro	Cys	Glu	Gly																
															4615	4620	4625														
aat	gct	gtg	gaa	ata	att	atg	tgc	aac	att	agg	cct	tgc	cca	gtt	cat	14158															
Asn	Ala	Val	Glu	Ile	Ile	Met	Cys	Asn	Ile	Arg	Pro	Cys	Pro	Val	His																
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gga	gca	tgg	agc	gct	tgg	cag	cct	tgg	gga	aca	tgc	agc	gaa	agt	tgt	14206															
Gly	Ala	Trp	Ser	Ala	Trp	Gln	Pro	Trp	Gly	Thr	Cys	Ser	Glu	Ser	Cys																
															4645	4650	4655														
ggg	aaa	ggg	act	cag	aca	aga	gca	aga	ctt	tgt	aat	aac	cca	cca	cca	14254															
Gly	Lys	Gly	Thr	Gln	Thr	Arg	Ala	Arg	Leu	Cys	Asn	Asn	Pro	Pro	Pro																
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gcg	ttt	ggg	ggg	tcc	tac	tgt	gat	gga	gca	gaa	aca	cag	atg	caa	gtt	14302															
Ala	Phe	Gly	Gly	Ser	Tyr	Cys	Asp	Gly	Ala	Glu	Thr	Gln	Met	Gln	Val																
															4680	4685	4690														
tgc	aat	gaa	aga	aat	tgt	cca	att	cat	ggc	aag	tgg	gcg	act	tgg	gcc	14350															
Cys	Asn	Glu	Arg	Asn	Cys	Pro	Ile	His	Gly	Lys	Trp	Ala	Thr	Trp	Ala																
															4695	4700	4705														
agt	tgg	agt	gcc	tgt	tct	gtg	tca	tgt	gga	gga	ggg	gcc	aga	cag	aga	14398															
Ser	Trp	Ser	Ala	Cys	Ser	Val	Ser	Cys	Gly	Gly	Gly	Ala	Arg	Gln	Arg																
															4710	4715	4720														
aca	agg	ggc	tgc	tcc	gac	cct	gtg	ccc	cag	tat	gga	gga	agg	aaa	tgc	14446															
Thr	Arg	Gly	Cys	Ser	Asp	Pro	Val	Pro	Gln	Tyr	Gly	Gly	Arg	Lys	Cys																
															4725	4730	4735														
gaa	ggg	agt	gat	gtc	cag	agt	gat	ttt	tgc	aac	agt	gac	cct	tgc	cca	14494															
Glu	Gly	Ser	Asp	Val	Gln	Ser	Asp	Phe	Cys	Asn	Ser	Asp	Pro	Cys	Pro																
															4740	4745	4750	4755													
acc	cat	ggg	aac	tgg	agt	cct	tgg	agt	ggc	tgg	gga	aca	tgc	agc	cgg	14542															
Thr	His	Gly	Asn	Trp	Ser	Pro	Trp	Ser	Gly	Trp	Gly	Thr	Cys	Ser	Arg																
															4760	4765	4770														
acg	tgt	aac	gga	ggg	cag	atg	cgg	cgg	tac	cgc	aca	tgt	gat	aac	cct	14590															
Thr	Cys	Asn	Gly	Gly	Gln	Met	Arg	Arg	Tyr	Arg	Thr	Cys	Asp	Asn	Pro																
															4775	4780	4785														
cct	ccc	tcc	aat	ggg	gga	aga	gct	tgt	ggg	gga	cca	gac	tcc	cag	atc	14638															
Pro	Pro	Ser	Asn	Gly	Gly	Arg	Ala	Cys	Gly	Gly	Pro	Asp	Ser	Gln	Ile																
															4790	4795	4800														
cag	agg	tgc	aac	act	gac	atg	tgt	cct	gtg	gat	gga	agt	tgg	gga	agc	14686															
Gln	Arg	Cys	Asn	Thr	Asp	Met	Cys	Pro	Val	Asp	Gly	Ser	Trp	Gly	Ser																
															4805	4810	4815														
tgg	cat	agt	tgg	agc	cag	tgc	tct	gcc	tcc	tgt	gga	gga	ggg	gaa	aag	14734															
Trp	His	Ser	Trp	Ser	Gln	Cys	Ser	Ala	Ser	Cys	Gly	Gly	Gly	Glu	Lys																
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act	cgg	aag	cgg	ctg	tgc	gac	cat	cct	gtg	cca	gtt	aaa	ggg	ggc	cgt	14782															
Thr	Arg	Lys	Arg	Leu	Cys	Asp	His	Pro	Val	Pro	Val	Lys	Gly	Gly	Arg																
															4840	4845	4850														
ccc	tgt	ccc	gga	gac	act	act	cag	gtg	acc	agg	tgc	aat	gta	caa	gca	14830															

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Pro	Cys	Pro	Gly	Asp	Thr	Thr	Gln	Val	Thr	Arg	Cys	Asn	Val	Gln	Ala		
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tgt	cca	ggg	ggg	ccc	cag	cga	gcc	aga	gga	agt	gtt	att	gga	aat	att	14878	
Cys	Pro	Gly	Gly	Pro	Gln	Arg	Ala	Arg	Gly	Ser	Val	Ile	Gly	Asn	Ile		
		4870					4875					4880					
aat	gat	gtt	gaa	ttt	gga	att	gct	ttc	ctt	aat	gcc	aca	ata	act	gat	14926	
Asn	Asp	Val	Glu	Phe	Gly	Ile	Ala	Phe	Leu	Asn	Ala	Thr	Ile	Thr	Asp		
		4885				4890					4895						
agc	cct	aac	tct	gat	act	aga	ata	ata	cgt	gcc	aaa	att	acc	aat	gta	14974	
Ser	Pro	Asn	Ser	Asp	Thr	Arg	Ile	Ile	Arg	Ala	Lys	Ile	Thr	Asn	Val		
4900					4905				4910						4915		
cct	cgt	agt	ctt	ggg	tca	gca	atg	aga	aag	ata	gtt	tct	att	cta	aat	15022	
Pro	Arg	Ser	Leu	Gly	Ser	Ala	Met	Arg	Lys	Ile	Val	Ser	Ile	Leu	Asn		
				4920					4925					4930			
ccc	att	tat	tgg	aca	aca	gca	aag	gaa	ata	gga	gaa	gca	gtc	aat	ggc	15070	
Pro	Ile	Tyr	Trp	Thr	Thr	Ala	Lys	Glu	Ile	Gly	Glu	Ala	Val	Asn	Gly		
			4935					4940					4945				
ttt	acc	ctc	acc	aat	gca	gtc	ttc	aaa	aga	gaa	act	caa	gtg	gaa	ttt	15118	
Phe	Thr	Leu	Thr	Asn	Ala	Val	Phe	Lys	Arg	Glu	Thr	Gln	Val	Glu	Phe		
		4950					4955					4960					
gca	act	gga	gaa	atc	ttg	cag	atg	agt	cat	att	gcc	cgg	ggc	ttg	gat	15166	
Ala	Thr	Gly	Glu	Ile	Leu	Gln	Met	Ser	His	Ile	Ala	Arg	Gly	Leu	Asp		
		4965				4970					4975						
tcc	gat	ggg	tct	ttg	ctg	cta	gat	atc	gtt	gtg	agt	ggc	tat	gtc	cta	15214	
Ser	Asp	Gly	Ser	Leu	Leu	Leu	Asp	Ile	Val	Val	Ser	Gly	Tyr	Val	Leu		
4980					4985				4990					4995			
cag	ctt	cag	tca	cct	gct	gaa	gtc	act	gta	aag	gat	tac	aca	gag	gac	15262	
Gln	Leu	Gln	Ser	Pro	Ala	Glu	Val	Thr	Val	Lys	Asp	Tyr	Thr	Glu	Asp		
				5000					5005					5010			
tac	att	caa	aca	ggg	cct	ggg	cag	ctg	tac	gcc	tac	tca	acc	cgg	ctg	15310	
Tyr	Ile	Gln	Thr	Gly	Pro	Gly	Gln	Leu	Tyr	Ala	Tyr	Ser	Thr	Arg	Leu		
			5015					5020					5025				
ttc	acc	att	gat	ggc	atc	agc	atc	cca	tac	aca	tgg	aac	cac	acc	gtt	15358	
Phe	Thr	Ile	Asp	Gly	Ile	Ser	Ile	Pro	Tyr	Thr	Trp	Asn	His	Thr	Val		
		5030					5035					5040					
ttc	tat	gat	cag	gca	cag	gga	aga	atg	cct	ttc	ttg	gtt	gaa	aca	ctt	15406	
Phe	Tyr	Asp	Gln	Ala	Gln	Gly	Arg	Met	Pro	Phe	Leu	Val	Glu	Thr	Leu		
		5045				5050					5055						
cat	gca	tcc	tct	gtg	gaa	tct	gac	tat	aac	cag	ata	gaa	gag	aca	ctg	15454	
His	Ala	Ser	Ser	Val	Glu	Ser	Asp	Tyr	Asn	Gln	Ile	Glu	Glu	Thr	Leu		
5060					5065					5070					5075		
ggg	ttt	aaa	att	cat	gct	tca	ata	tcc	aaa	gga	gat	cgc	agt	aat	cag	15502	
Gly	Phe	Lys	Ile	His	Ala	Ser	Ile	Ser	Lys	Gly	Asp	Arg	Ser	Asn	Gln		
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tgc	ccc	tcc	ggg	ttt	acc	tta	gac	tca	gtt	gga	cct	ttt	tgt	gct	gat	15550	
Cys	Pro	Ser	Gly	Phe	Thr	Leu	Asp	Ser	Val	Gly	Pro	Phe	Cys	Ala	Asp		
			5095					5100					5105				

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gag gat gaa tgt gca gca ggg aat ccc tgc tcc cat agc tgc cac aat Glu Asp Glu Cys Ala Ala Gly Asn Pro Cys Ser His Ser Cys His Asn 5110 5115 5120	15598
gcc atg ggg act tac tac tgc tcc tgc cct aaa ggc ctc acc ata gct Ala Met Gly Thr Tyr Tyr Cys Ser Cys Pro Lys Gly Leu Thr Ile Ala 5125 5130 5135	15646
gca gat gga aga act tgt caa gat att gat gag tgt gct ttg ggt agg Ala Asp Gly Arg Thr Cys Gln Asp Ile Asp Glu Cys Ala Leu Gly Arg 5140 5145 5150 5155	15694
cat acc tgc cac gct ggt cag gac tgt gac aat acg att gga tct tat His Thr Cys His Ala Gly Gln Asp Cys Asp Asn Thr Ile Gly Ser Tyr 5160 5165 5170	15742
cgc tgt gtg gtc cgt tgt gga agt ggc ttt cga aga acc tct gat ggg Arg Cys Val Val Arg Cys Gly Ser Gly Phe Arg Arg Thr Ser Asp Gly 5175 5180 5185	15790
ctg agt tgt caa gat att aat gaa tgt caa gaa tcc agc ccc tgt cac Leu Ser Cys Gln Asp Ile Asn Glu Cys Gln Glu Ser Ser Pro Cys His 5190 5195 5200	15838
cag cgc tgt ttc aat gcc ata gga agt ttc cat tgt gga tgt gaa cct Gln Arg Cys Phe Asn Ala Ile Gly Ser Phe His Cys Gly Cys Glu Pro 5205 5210 5215	15886
ggg tat cag ctc aaa ggc aga aaa tgc atg gat gtg aac gag tgt aga Gly Tyr Gln Leu Lys Gly Arg Lys Cys Met Asp Val Asn Glu Cys Arg 5220 5225 5230 5235	15934
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tat aag tgc att gat ctt tgt cca aat gga atg acc aag gca gaa aat Tyr Lys Cys Ile Asp Leu Cys Pro Asn Gly Met Thr Lys Ala Glu Asn 5255 5260 5265	16030
gga acc tgt att gat att gat gaa tgt aaa gat ggg acc cat cag tgc Gly Thr Cys Ile Asp Ile Asp Glu Cys Lys Asp Gly Thr His Gln Cys 5270 5275 5280	16078
aga tat aac cag ata tgt gag aat aca aga ggc agc tat cgt tgt gta Arg Tyr Asn Gln Ile Cys Glu Asn Thr Arg Gly Ser Tyr Arg Cys Val 5285 5290 5295	16126
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aga agg act att agg aaa act tgc cct gaa ggc tct gag gca agc cat Arg Arg Thr Ile Arg Lys Thr Cys Pro Glu Gly Ser Glu Ala Ser His 5415 5420 5425	16510
gac aca tgt gta gat att gat gaa tgt gaa aat aca gat gcc tgc cag Asp Thr Cys Val Asp Ile Asp Glu Cys Glu Asn Thr Asp Ala Cys Gln 5430 5435 5440	16558
cat gag tgt aag aat acc ttt gga agt tat cag tgc atc tgc cca cct His Glu Cys Lys Asn Thr Phe Gly Ser Tyr Gln Cys Ile Cys Pro Pro 5445 5450 5455	16606
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5615

5605

5610

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Tyr Gln Thr Thr Phe Ile Val Tyr Ile Ala Val Ser Ala Tyr Pro Tyr
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<211> 5635

<212> PRT

<213> Homo sapiens

<400> 2

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Tyr Ser Ser Leu Ala Gln Asp Ala Ser Pro Gln Ser Glu Ile Arg Ala
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Glu Glu Ile Pro Glu Gly Ala Ser Thr Leu Ala Phe Val Phe Asp Val
35 40 45
Thr Gly Ser Met Tyr Asp Asp Leu Val Gln Val Ile Glu Gly Ala Ser
50 55 60
Lys Ile Leu Glu Thr Ser Leu Lys Arg Pro Lys Arg Pro Leu Phe Asn
65 70 75 80
Phe Ala Leu Val Pro Phe His Asp Pro Glu Ile Gly Pro Val Thr Ile
85 90 95
Thr Thr Asp Pro Lys Lys Phe Gln Tyr Glu Leu Arg Glu Leu Tyr Val
100 105 110
Gln Gly Gly Gly Asp Cys Pro Glu Met Ser Ile Gly Ala Ile Lys Ile
115 120 125
Ala Leu Glu Ile Ser Leu Pro Gly Ser Phe Ile Tyr Val Phe Thr Asp
130 135 140
Ala Arg Ser Lys Asp Tyr Arg Leu Thr His Glu Val Leu Gln Leu Ile
145 150 155 160
Gln Gln Lys Gln Ser Gln Val Val Phe Val Leu Thr Gly Asp Cys Asp
165 170 175
Asp Arg Thr His Ile Gly Tyr Lys Val Tyr Glu Glu Ile Ala Ser Thr
180 185 190
Ser Ser Gly Gln Val Phe His Leu Asp Lys Lys Gln Val Asn Glu Val
195 200 205
Leu Lys Trp Val Glu Glu Ala Val Gln Ala Ser Lys Val His Leu Leu
210 215 220
Ser Thr Asp His Leu Glu Gln Ala Val Asn Thr Trp Arg Ile Pro Phe

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225	Asp	Pro	Ser	Leu	Lys	230	Glu	Val	Thr	Val	Ser	235	Leu	Ser	Gly	Pro	Ser	240	Pro
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Gly	Leu	His	Glu	Leu	Leu	Asn	Ile	His	Asn	Ser	Ala	Lys	270	Val	Val	Asn			
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Val	Lys	Glu	Pro	Glu	Ala	Gly	Met	Trp	Thr	Val	Lys	Thr	Ser	Ser	Ser				
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Gly	Arg	His	Ser	Val	Arg	Ile	Thr	Gly	Leu	Ser	Thr	Ile	Asp	Phe	Arg				
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Arg	Pro	Val	Gln	Gly	Ile	Pro	Thr	Tyr	Val	Leu	Leu	Asn	Thr	Ser	Gly				
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Ile	Ser	Thr	Pro	Ala	Arg	Ile	Asp	Leu	Leu	Glu	Leu	Leu	Ser	Ile	Ser				
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Gly	Ser	Ser	Leu	Lys	Thr	Ile	Pro	Val	Lys	Tyr	Tyr	Pro	His	Arg	Lys				
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Pro	Tyr	Gly	Ile	Trp	Asn	Ile	Ser	Asp	Phe	Val	Pro	Pro	Asn	Glu	Ala				
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Phe	Phe	Leu	Lys	Val	Thr	Gly	Tyr	Asp	Lys	Asp	Asp	Tyr	Leu	Phe	Gln				
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Arg	Val	Ser	Ser	Val	Ser	Phe	Ser	Ser	Ile	Val	Pro	Asp	Ala	Pro	Lys				
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Val	Thr	Met	Pro	Glu	Lys	Thr	Pro	Gly	Tyr	Tyr	Leu	Gln	Pro	Gly	Gln				
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Ile	Pro	Cys	Ser	Val	Asp	Ser	Leu	Leu	Pro	Phe	Thr	Leu	Ser	Phe	Val				
	450				455						460								
Arg	Asn	Gly	Val	Thr	Leu	Gly	Val	Asp	Gln	Tyr	Leu	Lys	Glu	Ser	Ala				
465					470					475					480				
Ser	Val	Asn	Leu	Asp	Ile	Ala	Lys	Val	Thr	Leu	Ser	Asp	Glu	Gly	Phe				
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Tyr	Glu	Cys	Ile	Ala	Val	Ser	Ser	Ala	Gly	Thr	Gly	Arg	Ala	Gln	Thr				
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Phe	Phe	Asp	Val	Ser	Glu	Pro	Pro	Val	Ile	Gln	Val	Pro	Asn	Asn					
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Val	Thr	Val	Thr	Pro	Gly	Glu	Arg	Ala	Val	Leu	Thr	Cys	Leu	Ile	Ile				
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Ser	Ala	Val	Asp	Tyr	Asn	Leu	Thr	Trp	Gln	Arg	Asn	Asp	Arg	Asp	Val				
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Arg	Leu	Ala	Glu	Pro	Ala	Arg	Ile	Arg	Thr	Leu	Ala	Asn	Leu	Ser	Leu				
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Glu	Leu	Lys	Ser	Val	Lys	Phe	Asn	Asp	Ala	Gly	Glu	Tyr	His	Cys	Met				
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Val	Ser	Ser	Glu	Gly	Gly	Ser	Ser	Ala	Ala	Ser	Val	Phe	Leu	Thr	Val				
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Gln	Glu	Pro	Pro	Lys	Val	Thr	Val	Met	Pro	Lys	Asn	Gln	Ser	Phe	Thr				
	610					615					620								
Gly	Gly	Ser	Glu	Val	Ser	Ile	Met	Cys	Ser	Ala	Thr	Gly	Tyr	Pro	Lys				
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Arg	Tyr	Arg	Met	Thr	Ser	Asp	Gly	Thr	Leu	Phe	Ile	Lys	Asn	Ala	Ala				
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Pro	Lys	Asp	Ala	Gly	Ile	Tyr	Gly	Cys	Leu	Ala	Ser	Asn	Ser	Ala	Gly				
		675					680					685							
Thr	Asp	Lys	Gln	Asn	Ser	Thr	Leu	Arg	Tyr	Ile	Glu	Ala	Pro	Lys	Leu				
	690					695					700								
Met	Val	Val	Gln	Ser	Glu	Leu	Val	Ala	Leu	Gly	Asp	Ile	Thr	Val					
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Met	Glu	Cys	Lys	Thr	Ser	Gly	Ile	Pro	Pro	Pro	Gln	Val	Lys	Trp	Phe				
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Lys Gly Asp Leu Glu Leu Arg Pro Ser Thr Phe Leu Ile Ile Asp Pro
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 Asp Tyr Thr Cys Val Ala Ile Asn Glu Ala Gly Arg Ala Thr Gly Lys
 770 775 780
 Ile Thr Leu Asp Val Gly Ser Pro Pro Val Phe Ile Gln Glu Pro Ala
 785 790 795 800
 Asp Val Ser Met Glu Ile Gly Ser Asn Val Thr Leu Pro Cys Tyr Val
 805 810 815
 Gln Gly Tyr Pro Glu Pro Thr Ile Lys Trp Arg Arg Leu Asp Asn Met
 820 825 830
 Pro Ile Phe Ser Arg Pro Phe Ser Val Ser Ser Ile Ser Gln Leu Arg
 835 840 845
 Thr Gly Ala Leu Phe Ile Leu Asn Leu Trp Ala Ser Asp Lys Gly Thr
 850 855 860
 Tyr Ile Cys Glu Ala Glu Asn Gln Phe Gly Lys Ile Gln Ser Glu Thr
 865 870 875 880
 Thr Val Thr Val Thr Gly Leu Val Ala Pro Leu Ile Gly Ile Ser Pro
 885 890 895
 Ser Val Ala Asn Val Ile Glu Gly Gln Gln Leu Thr Leu Pro Cys Thr
 900 905 910
 Leu Leu Ala Gly Asn Pro Ile Pro Glu Arg Arg Trp Ile Lys Asn Ser
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 Ala Met Leu Leu Gln Asn Pro Tyr Ile Thr Val Arg Ser Asp Gly Ser
 930 935 940
 Leu His Ile Glu Arg Val Gln Leu Gln Asp Gly Gly Glu Tyr Thr Cys
 945 950 955 960
 Val Ala Ser Asn Val Ala Gly Thr Asn Asn Lys Thr Thr Ser Val Val
 965 970 975
 Val His Val Leu Pro Thr Ile Gln His Gly Gln Gln Ile Leu Ser Thr
 980 985 990
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 995 1000 1005
 Lys Pro Ser Val Ile Trp Ser Lys Lys Gly Glu Leu Ile Ser Thr Ser
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 Pro Gly Gly Glu Glu Ser Gly Glu Tyr Val Cys Thr Ala Thr Asn Thr
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 Ala Gly Tyr Ala Lys Arg Lys Val Gln Leu Thr Val Tyr Val Arg Pro
 1060 1065 1070
 Arg Val Phe Gly Asp Gln Arg Gly Leu Ser Gln Asp Lys Pro Val Glu
 1075 1080 1085
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 Gly Gln Arg Val Asp Ile Pro Cys Asn Ala Gln Gly Thr Pro Leu Pro
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 Val Ile Thr Trp Ser Lys Gly Gly Ser Thr Met Leu Val Asp Gly Glu
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 1220 1225 1230
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 Thr Ile Lys Trp Leu His Asn Gly Arg Glu Leu Thr Gly Arg Glu Pro
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 Thr Pro Tyr Asp Asn Gly Glu Tyr Ile Cys Val Ala Val Asn Glu Ala
 1330 1335 1340
 Gly Thr Thr Glu Arg Lys Tyr Asn Leu Lys Val His Val Pro Pro Val
 1345 1350 1355 1360
 Ile Lys Asp Lys Glu Gln Val Thr Asn Val Ser Val Leu Leu Asn Gln
 1365 1370 1375
 Leu Thr Asn Leu Phe Cys Glu Val Glu Gly Thr Pro Ser Pro Ile Ile
 1380 1385 1390
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 Thr Val Asn Asn Gly Lys Ile Leu Lys Leu Phe Arg Ala Thr Pro Glu
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 Asp Ala Gly Arg Tyr Ser Cys Lys Ala Ile Asn Ile Ala Gly Thr Ser
 1425 1430 1435 1440
 Gln Lys Tyr Phe Asn Ile Asp Val Leu Val Pro Pro Thr Ile Ile Gly
 1445 1450 1455
 Thr Asn Phe Pro Asn Glu Val Ser Val Val Leu Asn Arg Asp Val Ala
 1460 1465 1470
 Leu Glu Cys Gln Val Lys Gly Thr Pro Phe Pro Asp Ile His Trp Phe
 1475 1480 1485
 Lys Asp Gly Lys Pro Leu Phe Leu Gly Asp Pro Asn Val Glu Leu Leu
 1490 1495 1500
 Asp Arg Gly Gln Val Leu His Leu Lys Asn Ala Arg Arg Asn Asp Lys
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 Asp Ile Lys Leu Thr Ile Tyr Asn Pro Pro Ser Ile Lys Gly Gly Asn
 1540 1545 1550
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 1555 1560 1565
 Cys Glu Thr Arg Gly Leu Pro Met Pro Ala Ile Thr Trp Tyr Lys Asp
 1570 1575 1580
 Gly Gln Pro Ile Met Ser Ser Ser Gln Ala Leu Tyr Ile Asp Lys Gly
 1585 1590 1595 1600
 Gln Tyr Leu His Ile Pro Arg Ala Gln Val Ser Asp Ser Ala Thr Tyr
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 Thr Cys His Val Ala Asn Val Ala Gly Thr Ala Glu Lys Ser Phe His
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 Leu Asn Lys Gln Val Val Ile Ala His Ser Leu Thr Leu Glu Cys Lys
 1650 1655 1660
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 1665 1670 1675 1680
 Pro Val Lys Ala Asn Asp Asn Ile Arg Ile Glu Ala Gly Gly Lys Lys
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 Leu Glu Ile Met Ser Ala Gln Glu Ile Asp Arg Gly Gln Tyr Ile Cys
 1700 1705 1710
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 Val Leu Val Pro Pro Ala Ile Glu Gly Gly Asp Glu Thr Ser Tyr Phe
 1730 1735 1740

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 Glu Arg Asp Gly Phe Lys Ile Leu Leu Asn Gly Arg Lys Leu Val Ile
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 Asn Thr Ala Gly Asp His Lys Lys Glu Phe Glu Val Thr Val His Val
 1810 1815 1820
 Pro Pro Thr Ile Lys Ser Ser Gly Leu Ser Glu Arg Val Val Val Lys
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 Tyr Lys Pro Val Ala Leu Gln Cys Ile Ala Asn Gly Ile Pro Asn Pro
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 Ser Ile Thr Trp Leu Lys Asp Asp Gln Pro Val Asn Thr Ala Gln Gly
 1860 1865 1870
 Asn Leu Lys Ile Gln Ser Ser Gly Arg Val Leu Gln Ile Ala Lys Thr
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 Leu Leu Glu Asp Ala Gly Arg Tyr Thr Cys Val Ala Thr Asn Ala Ala
 1890 1895 1900
 Gly Glu Thr Gln Gln His Ile Gln Leu His Val His Glu Pro Pro Ser
 1905 1910 1915 1920
 Leu Glu Asp Ala Gly Lys Met Leu Asn Glu Thr Val Leu Val Ser Asn
 1925 1930 1935
 Pro Val Gln Leu Glu Cys Lys Ala Ala Gly Asn Pro Val Pro Val Ile
 1940 1945 1950
 Thr Trp Tyr Lys Asp Asn Arg Leu Leu Ser Gly Ser Thr Ser Met Thr
 1955 1960 1965
 Phe Leu Asn Arg Gly Gln Ile Ile Asp Ile Glu Ser Ala Gln Ile Ser
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 Asp Ala Gly Ile Tyr Lys Cys Val Ala Ile Asn Ser Ala Gly Ala Thr
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 Glu Leu Phe Tyr Ser Leu Gln Val His Val Ala Pro Ser Ile Ser Gly
 2005 2010 2015
 Ser Asn Asn Met Val Ala Val Val Val Asn Asn Pro Val Arg Leu Glu
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 Asn Val Ala Gly Thr Ala Lys Lys Glu Tyr Asn Leu Gln Val Tyr Ile
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 Arg Pro Thr Ile Thr Asn Ser Gly Ser His Pro Thr Glu Ile Ile Val
 2275 2280 2285
 Thr Arg Gly Lys Ser Ile Ser Leu Glu Cys Glu Val Gln Gly Ile Pro
 2290 2295 2300
 Pro Pro Thr Val Thr Trp Met Lys Asp Gly His Pro Leu Ile Lys Ala
 2305 2310 2315 2320
 Lys Gly Val Glu Ile Leu Asp Glu Gly His Ile Leu Gln Leu Lys Asn
 2325 2330 2335
 Ile His Val Ser Asp Thr Gly Arg Tyr Val Cys Val Ala Val Asn Val
 2340 2345 2350
 Ala Gly Met Thr Asp Lys Lys Tyr Asp Leu Ser Val His Ala Pro Pro
 2355 2360 2365
 Ser Ile Ile Gly Asn His Arg Ser Pro Glu Asn Ile Ser Val Val Glu
 2370 2375 2380
 Lys Asn Ser Val Ser Leu Thr Cys Glu Ala Ser Gly Ile Pro Leu Pro
 2385 2390 2395 2400
 Ser Ile Thr Trp Phe Lys Asp Gly Trp Pro Val Ser Leu Ser Asn Ser
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 Val Arg Ile Leu Ser Gly Gly Arg Met Leu Arg Leu Met Gln Thr Thr
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 Met Glu Asp Ala Gly Gln Tyr Thr Cys Val Val Arg Asn Ala Ala Gly
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 Val Thr Leu Thr Cys Glu Val Thr Gly Asn Pro Val Pro Glu Ile Thr
 2485 2490 2495
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 Thr Ser Leu Val Cys Glu Ala Tyr Ser Tyr Pro Pro Ala Thr Ile Thr
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 Lys His Tyr Glu Val Lys Val Tyr Ile Pro Pro Ile Ile Asn Lys Gly
 2645 2650 2655
 Asp Leu Trp Gly Pro Gly Leu Ser Pro Lys Glu Val Lys Ile Lys Val
 2660 2665 2670
 Asn Asn Thr Leu Thr Leu Glu Cys Glu Ala Tyr Ala Ile Pro Ser Ala
 2675 2680 2685
 Ser Leu Ser Trp Tyr Lys Asp Gly Gln Pro Leu Lys Ser Asp Asp His
 2690 2695 2700
 Val Asn Ile Ala Ala Asn Gly His Thr Leu Gln Ile Lys Glu Ala Gln
 2705 2710 2715 2720
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 2725 2730 2735
 2740 2745 2750

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Glu Asp Glu Leu Asp Phe Asp Val Asn Ile Gln Val Pro Pro Ser Phe
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 Glu Ala Lys Asp Val Ile Ile Asn Asn Pro Ile Ser Leu Tyr Cys Glu
 2785 2790 2795 2800
 Thr Asn Ala Ala Pro Pro Thr Leu Thr Trp Tyr Lys Asp Gly His
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 Pro Leu Thr Ser Ser Asp Lys Val Leu Ile Leu Pro Gly Gly Arg Val
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 Val Ala Val Asn Glu Ala Gly Glu Asp Ser Leu Gln Tyr Asp Val Arg
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 Thr Tyr Glu Cys Thr Val Thr Asn Gly Ala Gly Asp Asp Lys Arg Thr
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 His Tyr Thr Cys Met Ala Ala Asn Val Ala Gly Ser Ser Ser Thr Ser
 4145 4150 4155 4160
 Thr Lys Leu Thr Val His Val Pro Pro Arg Ile Arg Ser Thr Glu Gly
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 <220>
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 cDNA sequence (SEQ ID NO:1)

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 cDNA sequence (SEQ ID NO:1)

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<211> 21
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 16,263 of SEQ ID NO:1

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16,263 of SEQ ID NO:1

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 16,263 of SEQ ID NO:1

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 16,263 of SEQ ID NO:1

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21

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<400> 177

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21

<210> 178

<211> 41

<212> PRT

<213> Homo sapiens

<400> 178

Asp	Ile	Asn	Glu	Cys	Glu	Gln	Val	Pro	Lys	Pro	Cys	Ala	His	Gln	Cys
1				5					10					15	
Ser	Asn	Thr	Pro	Gly	Ser	Phe	Lys	Cys	Ile	Cys	Pro	Pro	Gly	Gln	His
			20					25					30		
Leu	Leu	Gly	Asp	Gly	Lys	Ser	Cys	Ala							
		35					40								

<210> 179

<211> 41

<212> PRT

<213> Mus musculus

<400> 179

Asp	Ile	Asn	Glu	Cys	Glu	Gln	Val	Pro	Lys	Pro	Cys	Ala	His	Gln	Cys
1				5					10					15	
Ser	Asn	Ser	Pro	Gly	Ser	Phe	Lys	Cys	Ile	Cys	Leu	Pro	Gly	Gln	Gln
			20					25					30		
Leu	Leu	Gly	Asp	Gly	Lys	Ser	Cys	Ala							
		35					40								

<210> 180

<211> 40

<212> PRT

<213> Sus scrofa

<400> 180

Ile	Asn	Glu	Cys	Glu	Gln	Val	Pro	Lys	Pro	Cys	Ala	Tyr	Gln	Cys	Ser
1				5					10					15	
Asn	Thr	Pro	Gly	Ser	Phe	Lys	Cys	Ile	Cys	Pro	Pro	Gly	Gln	His	Leu
			20					25					30		
Leu	Gly	Asp	Gly	Lys	Ser	Cys	Ala								
		35					40								

<210> 181

<211> 30

<212> PRT

<213> Rattus norvegicus

<400> 181

Cys Ala His Gln Cys Ser Asn Ser Pro Gly Ser Phe Lys Cys Ile Cys

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1 5 10 15
 Leu Pro Gly Gln His Leu Leu Gly Asp Gly Lys Ser Cys Ala
 20 25 30

<210> 182

<211> 24

<212> PRT

<213> *Felis domestica*

<400> 182

Asn Thr Pro Gly Ser Phe Lys Cys Ile Cys Pro Pro Gly Gln His Leu
 1 5 10 15
 Leu Gly Asp Gly Lys Ser Cys Ala
 20

<210> 183

<211> 30

<212> PRT

<213> *Canis familiaris*

<400> 183

Cys Ala Tyr Gln Cys Ser Asn Thr Pro Gly Ser Phe Lys Cys Ile Cys
 1 5 10 15
 Pro Pro Gly Gln His Leu Leu Gly Asp Gly Lys Ser Cys Ala
 20 25 30

<210> 184

<211> 25

<212> PRT

<213> *Ovis aries*

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Phe Asn Thr Pro Gly Ser Phe Lys Cys Ile Cys Pro Pro Gly Gln His
 1 5 10 15
 Leu Leu Gly Asp Gly Lys Ser Cys Ala
 20 25

<210> 185

<211> 23

<212> PRT

<213> *Oryctolagus cuniculus*

<400> 185

Thr Pro Gly Ser Phe Lys Cys Thr Cys Pro Pro Gly Gln His Leu Leu
 1 5 10 15
 Gly Asp Gly Lys Ser Cys Ala
 20

<210> 186

<211> 30

<212> PRT

<213> *Gallus gallus*

<400> 186

Cys Ala Phe Gln Cys Thr Asn Thr Pro Gly Ser Phe Lys Cys Ile Cys
 1 5 10 15
 Pro Pro Gly Gln His Leu Leu Gly Asp Gly Lys Ser Cys Ala
 20 25 30

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